

REMARKS

Claims 1-3, 5, 7, 9-14, 16-18, 21-27 are pending. Claims 19, 20, 28, 29, 31-32 have been withdrawn. Claims 4, 6, 8, 15 and 30 has been canceled.

Claims 1-3, 5-14, 16-18 and 21-23 stand rejected under 35 USC 103 as being unpatentable over US Published Patent Application 2002/0049449 (“Bhatnagar”) in view of US Patent No. 4,645,488 (“Matukas”).

I. Bhatnagar

In formulating the rejection, the Examiner found that “Bhatnagar et al. disclose a syringe system or device for injecting bone cement including : a flexible delivery tube 44 having a proximal end portion 42 and a distal end portion; and a cannula 12; wherein the movement of a plunger within the delivery tube can be automated by attachment to an electromechanical or pneumomechanical servo system or “advancement means”.

However, Applicant disagrees with the Examiner’s characterization of the syringe 42 as being the proximal end portion of the flexible delivery tube.

The syringe 42 is the advancement means component of FIG. 4. Syringe 42 is not part of the “flexible delivery tube” 44 because it is not disclosed as being flexible. It is a separate and distinct component from flexible delivery tube 44, whose proximal end connects with syringe 42. To treat flexible delivery tube 44 and syringe 42 as a single component characterized as the “flexible delivery tube” misconstrues the Bhatnagar disclosure.

Although Applicants note that the movement of a plunger within the delivery tube of Bhatnagar can be automated by attachment to an electromechanical or pneumomechanical servo system or “advancement means”, use of such a component would not alter the placement of the plunger as being within inflexible syringe 42 of Bhatnagar. Therefore, Bhatnagar systems having an electromechanical or pneumomechanical servo system would still fail to possess a plunger within the flexible delivery tube, as the plunger would still be part of the (inflexible) syringe upon which the electromechanical or pneumomechanical servo system acts.

Therefore, there is no flexible plunger within the flexible delivery tube 44 disclosed in FIG.4, and there is no flexible plunger within the flexible delivery tube 44 when the plunger is actuated by an electromechanical or pneumomechanical servo system.

Therefore, Bhatnagar discloses less than what is represented by the Examiner, namely, it clearly fails to disclose a flexible plunger within the flexible delivery tube 44.

II. Matukas

Moreover, even if the Examiner's characterization of Bhatnagar were to stand (which Applicant vigorously denies), the Examiner still admits that Bhatnagar does not disclose a syringe having flexible walls. The Examiner nonetheless finds that Matukas teaches a flexible syringe 10 with a flexible piston or plunger to reduce the frictional resistance between the material and the wall of the syringe or delivery tube, and that it would have been obvious to have provided a flexible syringe with a flexible plunger, as taught by Matukas, in the Bhatnagar system in order to reduce the material between the material and the wall of the syringe.

In the last Response, Applicants argued that the proximal end portion of the plunger is that which is nearest to the user, while the distal end portion of the plunger is that which is furthest from the user. For example, Applicant has characterized the flexible plunger of FIG. 2 of the present application as having a distal end portion 23 sized for slidable reception in the bore and a proximal end portion 25. See as-filed specification at page 4, lines 18-19. Since the Patentee is entitled to be its own lexicographer, the proximal end portion of the plunger should be that which is nearest to the user, while the distal end portion of the plunger should be that which is furthest from the user. Put another way, the distal end 23 of the plunger is that which contacts the cement in FIG. 2.

Applying this lexicography to Matukas, it appears that the flexible piston 16 is furthest from the user and contacts the cement, and so should be considered the distal end portion. In contrast, piston rod 14 is nearer the user and so should be considered the proximal end portion. When the components are described in this context, Applicant

submits that Matukas does not disclose a flexible plunger having a flexible proximal end portion.

In the Final Office Action, the Examiner responded to Applicant's arguments as follows:

Proximal end portion" and "distal end portion" are defined based on a point of reference. Absent a point of reference, a person can designate an end portion as either a proximal end portion or a distal end portion.

Regardless of the point of reference, Matukas teaches that plunger 14 can be made of nylon, a flexible material and that the piston can be made of a flexible material (col. 4, lines 15-26)

Applicant respectfully disagrees on both counts.

Respecting the point of reference, the Examiner's remark merely states what is known and provides guidance only in the absence of a point of reference. However, Applicants have chosen a point of reference, and have designated the proximal end portion of the plunger as that which is nearest to the user, and the distal end portion of the plunger as that which is furthest from the user. Thus, it is appropriate to regard Matukas' piston 16 as the distal end of the plunger and Matukas' rod 14 as the proximal end of the plunger. In such a designation, the proximal end of the Matukas plunger is not flexible.

Respecting nylon, the mere fact that the plunger rod can be made of nylon does not mean that the plunger rod must be flexible. Nylon components can be fabricated in ways that them very rigid. For example, US Patent Number 6,796,617 discloses a perdurable composite roller skating cylinder and methodology of making the same from low cost readily available commoditized commercial parts. In the in-line roller skating embodiment the cylinder will provide the combine features of long wear life, shock absorption and smooth running through the use of a rigid nylon core or equivalent and an appropriate longitudinal section of flexible polyurethane tubing or equivalent. Similarly, US Patent Number 4,176,816 discloses rigid nylon articles provided with a chamber

therewithin and water is sealed within the chamber. Therefore, Matukas does not disclose a flexible plunger rod.

Moreover, a proper use of Matukas would merely be that of making flexible the syringe 42 and the piston (distal portion) of the plunger of Bhatnagar. However, this does not cure the prime deficiencies of Bhatnagar, namely, its lack of a plunger located in flexible delivery tube 44, and its lack of a plunger having a flexible proximal portion.

Therefore, the present rejection should be withdrawn.

Claims 24-27 stand rejected under 35 USC 103 as being unpatentable over US Published Patent Application 2002/0049449 (“Bhatnagar”) in view of US Patent No. 4,645,488 (“Matukas”) and US Patent No. 4,865,591 (Sams).

As explained above, Matukas does not teach a flexible plunger having a flexible proximal end portion. Sams has been cited for its disclosure related to ratchet teeth and so does not cure the deficiencies of the proposed combination, nor of Matukas.

Therefore, the present rejection should be withdrawn.

Please provide any extensions of time which may be necessary and charge any fees which may be due to Deposit Account No. 10-0750/DEP5164/TMD, but do not include any payment of issue fees.

Respectfully submitted,

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